

FT245BM and FT232BM Pin states

The BM series of chips have pull-up and pull-down resistors that can be used when the devices have the PWREN# signal turned off to minimise the supply current used on a board. The PWREN# signal will be off if :

a) the device is in reset

OR

b) the device is not configured by USB enumeration

OR

c) the system is in suspend

Pull Up / Pull Down Values

The Pull Up and Pull Down resistors have a value of 200 KOhm nominal +/- 50%. This gives possible values of 100-300 KOhm.

IO Voltage

All the pins described here are powered from the VCCIO pin 13 of the FT232BM and FT245BM. If the VCCIO pin is connected to 3.3 volts then these pins will drive to 3.3 volts. This makes it simple to connect to 3.3 volt logic. The pins EESK, EECS, EEDATA, TEST and RESET# operate on 5 volts only.

CHIP PIN MODES

key :

PD - Pull Down resistor

PU - Pull Up resistor

O/P - Output with no pull up or pull down resistor

I/P - Input

I/O - input or output depending on FT245BM RD# line

int PDEN - bit held in EEPROM set using FTD2XXST.exe programmer.

PWREN# off - off if chip is held reset OR it is NOT configured OR it is in suspend.

PWREN# on - on if chip is NOT held reset AND it is configured AND it is NOT in suspend.

Bit Bang Mode - this overrides the 'int PDEN' bit set by the EEPROM.

FT232BM

	<u>int PDEN off</u>		<u>int PDEN on</u>		
<u>Pin</u>	<u>PWREN# off</u>	<u>PWREN# on</u>	<u>PWREN# off</u>	<u>PWREN# on</u>	<u>Bit Bang Mode</u>
TXD	O/P	O/P	I/P with PD	O/P	PU if I/P
RXD	I/P with PU	I/P with PU	I/P with PD	I/P with PU	PU if I/P
RTS#	O/P	O/P	I/P with PD	O/P	PU if I/P
CTS#	I/P with PU	I/P with PU	I/P with PD	I/P with PU	PU if I/P
DTR#	O/P	O/P	I/P with PD	O/P	PU if I/P
DSR#	I/P with PU	I/P with PU	I/P with PD	I/P with PU	PU if I/P
DCD#	I/P with PU	I/P with PU	I/P with PD	I/P with PU	PU if I/P
RI#	I/P with PU	I/P with PU	I/P with PD	I/P with PU	PU if I/P
TXDEN	O/P	O/P	O/P	O/P	I/P with PU
PWREN#	O/P '1'	O/P '0'	O/P '1'	O/P '0'	I/P with PU
PWRCTL	I/P with PU	I/P with PU	I/P with PU	I/P with PU	O/P '1' *2
TXLED	I/P no PU	I/P no PU *1	I/P with PU	I/P no PU *1	O/P '1' *2
RXLED	I/P no PU	I/P no PU *1	I/P with PU	I/P no PU *1	I/P with PU
SLEEP#	O/P	O/P	O/P	O/P	O/P '0'

*1 :- These are input unless they are signalling an RX or TX character. When they are signalling they switch to output driving '0'.

*2 :- These become I/P with PU if the chip is in suspend.

FT245BM

	<u>int PDEN off</u>		<u>int PDEN on</u>		
<u>Pin</u>	<u>PWREN# off</u>	<u>PWREN# on</u>	<u>PWREN# off</u>	<u>PWREN# on</u>	<u>Bit Bang Mode</u>
D0	I/O with PU	I/O with PU	I/P with PD	I/O with PU	PU if I/P
D1	I/O with PU	I/O with PU	I/P with PD	I/O with PU	PU if I/P
D2	I/O with PU	I/O with PU	I/P with PD	I/O with PU	PU if I/P
D3	I/O with PU	I/O with PU	I/P with PD	I/O with PU	PU if I/P
D4	I/O with PU	I/O with PU	I/P with PD	I/O with PU	PU if I/P
D5	I/O with PU	I/O with PU	I/P with PD	I/O with PU	PU if I/P
D6	I/O with PU	I/O with PU	I/P with PD	I/O with PU	PU if I/P
D7	I/O with PU	I/O with PU	I/P with PD	I/O with PU	PU if I/P
RD#	I/P with PU	I/P with PU	I/P with PD	I/P with PU	I/P with PU
WR	I/P with PU	I/P with PU	I/P with PD	I/P with PU	I/P with PU
TXE#	O/P *2	O/P *2	I/P with PD	O/P	O/P '1' *2
RXF#	O/P *2	O/P *2	I/P with PD	O/P	O/P '1' *2
SND/Wake	I/P with PU	I/P with PU	I/P with PD	I/P with PU *	I/P with PU
PWREN#	O/P '1'	O/P '0'	O/P '1'	O/P '0'	O/P '0'

*2 :- These become I/P with PU if the chip is in suspend.